Rec'd. 8,500 — 5-15-69

FACT SHEET

L-827

RICE VARIETIES FOR TEXAS

R. J. Hodges, Charles N. Bollich, John E. Scott and John G. Atkins*

Commercial rice varieties grown in the United States are classified as short, medium and long-grain types. The 1968 Rice Acreage Statistics compiled by the Rice Millers' Association reports long-grain varieties were seeded on 49 percent of the nation's rice acreage. Medium-grain varieties occupied 42 percent of the acreage and the other 9 percent was seeded to short-grain varieties.

In southern rice-producing states, long-grain varieties were seeded to 60 percent of the acreage and the medium-grain varieties on 40 percent. Short-grain varieties were seeded to less than 1 percent of the acreage. Texas farmers seeded 86 percent of their acreage to long-grain varieties, devoting the remaining 14 percent to medium-grain varieties.

In 1968, Bluebelle was the major variety in the southern production area and in the nation. It was seeded to 20 percent of 2,346,407 U.S. acres and to 25 percent of the 1,911,737 acres in the southern area. It was seeded on 47 percent of Texas' 595,363 acres in 1968 while Belle Patna, the second most important variety, occupied 29 percent of this acreage.

U. S. varieties were developed as selections from introduced japonica or indica varieties, as selections of crosses between indica-japonica types, or from crosses in which at least one of the parental varieties had been developed from indica-japonica crosses. Japonica and indica types used in U.S. varieties were primarily introduced from the Philippines, Taiwan, Japan and India (now East Pakistan). High yielding japonica short-grain varieties make up the bulk of the California acreage.

*Extension agronomist, Texas A&M University; research agronomist, Crops Research Division, Agricultural Research Service, USDA; research associate, Texas Agricultural Experiment Station; and research plant pathologist, Crops Research Division, Agricultural Research Service, USDA, Beaumont, Texas.

United States rice breeders list four separate maturity groups for rice varieties. Number of days from seeding to maturity for these groups are: (1) very early-maturing (96 to 117); (2) early-maturing (109 to 132); (3) mid-season maturing (132 to 150) and (4) late-maturing (150 and longer). Much variation and overlapping indicated by listed ranges depends on climatic conditions under which the variety is grown. Normally, a longer period from seeding to maturity results if rice is seeded early in the season when temperatures are low. For photoperiod-sensitive varieties, duration of the vegetative cycle is reduced when rice is seeded later in the season. Some varieties sensitive to photoperiod will head at the same time of year regardless of seeding date. Early and very early maturity groups now grown in the United States are relatively insensitive to photoperiod.

When selecting the variety to grow, farmers should consider such factors as market demand, length of harvest season and capacity of harvest and drying and storage facilities available at harvest time. In addition, the selected variety should be adapted to the level of soil fertility that can be made available. Consider the variety's resistance to blast and straighthead in areas where these diseases affect yields. If double cropping is considered, then varietal selection is critical because only very early-maturing varieties will consistently produce a second crop under Texas conditions.

DESCRIPTION OF VARIETIES

Long-grain Varieties

Very early-maturing varieties

Bluebelle: This variety is more resistant to lodging than any commercial variety currently grown. For this reason it can utilize higher levels of nitrogen than most other varieties. Bluebelle was developed from a cross between a rogue from the variety Rexark with a selection from a cross

Texas A&M University • Agricultural Extension Service • John E. Hutchison, Director • College Station

between Century Patna 231 and a Hill Selection—Bluebonnet cross. It was released by the Agricultural Research and Extension Center at Beaumont in cooperation with the U. S. Department of Agriculture during spring, 1965.

In Texas performance trials it has consistently produced higher first crop yields than any other long-grain variety. However, second crop Bluebelle yields, while acceptable, generally are lower than those of Belle Patna on heavy soils. Early Bluebelle seedings on sandy soils in the western section of the Texas rice belt have produced second crop yields equal to or greater than Belle Patna.

The period from seeding to maturity for Bluebelle varies from 99 to 117 days in Texas, or 0 to 8 days longer than that of Belle Patna. Bluebelle, under comparable conditions, averages about 4 inches shorter than Belle Patna. Early plantings of both varieties normally produce shorter plants. As seeding is delayed, plants normally become progressively taller under similar cultural practices.

Bluebelle grains are long and slender with smooth (glabrous) gold hulls. This variety is rated susceptible to races 1 and 6 of the blast fungus *(Piricularia oryzae)* and moderately susceptible to some minor U. S. races. Bluebelle is moderately resistant to straighthead but susceptible to brown spot, narrow brown leaf spot, kernel smut and leaf smut.

Bluebelle's milling quality compares favorably with that of Belle Patna and Bluebonnet 50, and its cooking and processing qualities are similar to those varieties. While Bluebelle's leaf structure is not a true erect leaf type, it does have more of an upright leaf structure than other U. S. varieties. This leaf allows improved light penetration and may be partially responsible for improved nitrogen response observed in this variety.

Belle Patna: First crop yields of Belle Patna generally are below those of Bluebelle, but second crop yields are moderately higher on heavier soils. Thus, total yield of first and second crop is usually higher for Bluebelle; however, Belle Patna may produce the highest yields in some locations. It is more susceptible to lodging than Bluebelle, and is susceptible to blast but resistant to straighthead. Its maturity varies from 96 to 117 days. Belle Patna is a pedigree selection of a cross between Rexoro and a progeny of the cross Hill Selection x Bluebonnet. It was released by the Agricultural Research and Extension Center at Beaumont in cooperation with the U. S. Department of Agriculture in spring, 1961. Its grains are long and slender and the hulls are glabrous and straw-colored with a faint purple tip (apiculus).

Early-maturing varieties

Dawn: Dawn's outstanding characteristic is its resistance to currently known races of blast in the United States. In the absence of blast, Texas yields of Dawn and Belle Patna are generally equal. Dawn apparently is more resistant to lodging than Belle Patna and Bluebonnet 50, but less resistant than Bluebelle. It is susceptible to straighthead. Dawn was released by the Agricultural Research and Extension Center at Beaumont in cooperation with the U. S. Department of Agriculture in 1966 and is from the cross Century Patna 231 x HO 12-1-1. This variety has many of the characteristics of Century Patna 231. It has the same growth period, similar plant type and its grain resembles that of Century Patna 231 in size and shape. The hull is gold, glabrous, awnless and has a colorless apiculus.

Midseason-maturing varieties

Bluebonnet 50: This variety generally produces lower yields than Bluebelle, Belle Patna and Dawn. It is susceptible to prevalent races of blast in Texas but is resistant to straighthead. The original Bluebonnet came from the cross Rexoro x Fortuna. Bluebonnet 50 was selected from a field of Bluebonnet and was released by the Agricultural Research and Extension Center at Beaumont in cooperation with the U. S. Department of Agriculture in 1951. The straw-colored hulls are glabrous and awned. Widely grown in the past, it now makes up only a small acreage in the Texas Rice Belt.

Starbonnet: This variety is a short-strawed, long-grain rice variety developed in the cooperative varietal improvement program and released for general production in Arkansas in 1967. It was derived from a cross between Century Patna 231 and Bluebonnet. Compared to Bluebonnet 50 growing under similar conditions, Starbonnet plants produce more tillers, usually have narrower and shorter leaves, average 8 days earlier in heading, average 15 percent shorter in height, produce shorter and less droopy panicles, have culms (stems) with considerably shorter internodes at maturity and are more resistant to lodging.

This variety responds to higher nitrogen fertility and is expected to replace much Bluebonnet 50 acreage in Arkansas. Because it is in the midseason maturity group, it has not had wide appeal to Texas rice producers. Starbonnet hulls are glabrous, awnless and straw-colored with faint purple apiculi. Starbonnet grains are slightly smaller than those of Bluebonnet 50. The variety has cooking and processing characteristics similar to those of Bluebonnet 50. It is susceptible to blast and moderately resistant to straighthead.

Late-maturing varieties

Texas Patna: This variety was distributed to growers in 1942 by the Agricultural Research and Extension Center at Beaumont in cooperation with the U. S. Department of Agriculture. It was developed from the cross Rexoro x C.I. 5094. Similar to Rexoro, it grows slightly taller, matures about 10 days earlier and has a more translucent grain. Grain yields are generally lower than those of newer long-grain varieties. Because of its taller and weaker straw, it may lodge more than Rexoro when grown on rich land. It is resistant to straighthead and white tip, but susceptible to blast and narrow brown leaf spot. It has long, slender grains which have glabrous gold hulls.

TP-49: This variety was developed from a cross of Texas Patna x (Rexoro x C.I. 7689) at the Agricultural Research and Extension Center at Beaumont in cooperation with the U. S. Department of Agriculture and released to producers in 1948. It is similar to Texas Patna except that it has shorter and stronger straw and somewhat thicker gold grain. It is susceptible to straighthead and blast. It matures at about the same time as Texas Patna. Texas farmers sometimes call this variety "Stiff Straw Patna" or "Short Straw Patna."

Rexoro: This variety was selected in 1926 at Crowley, Louisiana, from the Jarong-paroc variety introduced from the Philippine Islands in 1911 by the U. S. Department of Agriculture. It was distributed by the U. S. Department of Agriculture in cooperation with the Louisiana Agricultural Experiment Station in 1928. It is gold, stiff-strawed, late-maturing, long-grain rice. Rexoro yields generally are lower than those of the newer long-grain varieties. Cooking quality is very good. It is resistant to white tip, but susceptible to narrow brown leaf spot, straighthead and prevalent strains of blast fungus. Texas farmers often call this variety "Old Patna." In acreage and production statistics, Texas Patna, TP-49 and Rexoro are normally grouped since they are grown on very small acreages. These varieties still demand a premium price as superior long-grain rices.

Medium-grain Varieties

Early-maturing varieties

Nato: This variety produces good first crop yields and satisfactory second crop yields, provided the first crop is harvested no later than August 10. An outstanding characteristic of the variety is its excellent milling yield. It is rated resistant to race 1 and some of the minor U. S. blast races, but susceptible to races 6 and 7. Race 6 is prevalent in Texas and race 7 has been observed recently. It is somewhat resistant to narrow brown leaf spot and moderately susceptible to straighthead and white tip. Nato was selected from the progeny of the cross Rexoro-Purpleleaf x Magnolia. Nato was released to growers by the Louisiana Agricultural Experiment Station in 1956. Its grain is straw-colored and glabrous.

Saturn: This variety has higher yielding potential than Nato, but is more susceptible to lodging. It currently is resistant to most prevalent races of blast in Texas. However, damage has been observed under conditions favorable for blast infection. These infections probably are caused by race 7, formerly a minor strain, since the variety is resistant to races 1 and 6. Saturn's milling yield is lower than that of Nato. It was released in 1964 by the Louisiana Rice Experiment Station and was developed from the cross of Lacrosse x Magnolia. Saturn is moderately resistant to straighthead. This variety has straw-colored hulls, is glabrous and lacks apiculus color. It is replacing much of the Nato acreage in Louisiana where blast is a serious problem. Because it is susceptible to lodging, type of soil and fertility practices are important for successful production.

Nova 66: This variety is a direct selection from Nova and was released from Arkansas Experiment Station in 1966. Nova parentage includes Lacrosse and an unnamed selection from a cross between Zenith and Nira. In Arkansas tests it has shown higher resistance to rice blast than Nato. It is moderately resistant to straighthead and resistant to Hoja Blanca, an insect-transmitted virus that has not yet been found in Texas. In Arkansas, Nova 66 produces more grain per acre than Nato. Average milling yields of Nova 66 on a percentage basis are less than those of Nato, but the two varieties are almost equal in head rice yield on a pounds-per-acre basis. Nova 66 may be damaged by races of blast fungus in Louisiana and Texas. The grain has glabrous, straw-colored hulls.

Gulfrose: This variety matures approximately 6 days earlier than Nato. It is a pedigree selection from a cross of Bruinmissie selection by Zenith. The variety is resistant to the Hoja Blanca virus, and moderately susceptible to straighthead. It is resistant to blast race 6 and susceptible to races 1 and 7. It was released by the Agricultural Research and Extension Center at Beaumont in cooperation with the U. S. Department of Agriculture in 1960. The grain has smooth straw-colored hulls and is easily combined. This variety was released primarily because of its resistance to the virus disease Hoja Blanca. Since this disease is no longer

an immediate threat to U. S. rice-producing areas and Gulfrose is rather susceptible to lodging, it currently is grown on a very limited acreage.

Short-grain Varieties

Short-grain rice is not grown in the southern rice area because available varieties are not well adapted and there is little demand in this area for this type rice. According to 1968 rice acreage statistics compiled by the Rice Millers' Association, Arkansas produced a small acreage of Pearl rice, but the main short-grain production is in California.

The rice varietal picture changes slowly because of the tedious and time-consuming task of making crosses and testing for the many characteristics desirable in a variety before its release to producers.

Cooperative Extension Work in Agriculture and Home Economics, Texas A&M University and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, 1914, as amended, and June 30, 1914.
8.5M—5-69